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1. Introduction

Students of international economics have noted a dramatic increase in international capital mobility in recent decades. This development has contributed to a conceptual revolution in macroeconomic theory: a nation's supply of investment credit, long considered dependent upon domestic savings, is increasingly held to be determined by international supply and demand, domestic economies being compelled by competition to adjust more or less rapidly to a uniform world interest rate.[1]

This open economy perspective challenges several tenets of traditional economic policy. Most prominent is the notion that market clearing requires the equality of domestic savings and investment. This lynchpin of Keynesian economics is rejected by open economy macroeconomics, which argues that a change in domestic savings affects domestic investment only via its impact on the international interest rate, while a shift in domestic investment affects the current account rather the rate of interest.

In consequence, open economy macroeconomics suggests that economic policies that alter domestic saving cannot alter the cost of capital, the real rate of interest, or the supply of domestic credit. Government deficits, in particular, do not crowd out private investment, and hence alter the time profile of national consumption rather than lowering the rate of economic growth. By the same token, however, policies promising more rapid growth through the encouragement of private saving (so-called 'supply side' policies) are without merit.

In technical terms, the shift from closed to open economy macroeconomic

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1. See Dornbusch (1980). For early contributions, see Fleming (1962) and Mundell (1963).

models replace one policy constraint -- the balancing of the current account-- with another -- the equalization of domestic and international rates of return. More pointedly, in an open economy, the power of workers to raise their wages or working conditions above world levels, or the ability of governments to impose environmental and occupational safety regulations upon industry, or the power of the monetary authority to run a more expansionary monetary policy than those abroad, are all compromised by the threat of capital flight.

The evidence in favor of this new perspective is ambiguous. Proponents cite the decline in capital controls, the growth of Eurocurrency markets, reduced communication and transportation costs, the maturation of international financial intermediaries, and a healthy rate of growth of financial transactions across national boundaries. Also Eurocurrency and other inter-country asset markets increasingly constrain the returns to off-shore financial instruments to follow quite closely those of comparable assets issued domestically (Obstfeld, 1985; Cumby and Obstfeld, 1984; Frankel, 1985).

However the major prediction of the open economy model, that increased international capital mobility has decoupled the traditional savings-investment linkage, is repeatedly and decisively rejected in econometric studies. Rather, studies tend to support the traditional notion that, while current account 'imbalance' allows significant independent movement in savings and investment in the short run, over the medium run the equality of savings and investment tends to reassert itself in most national economies.[2]

This result suggests that international capital markets deviate considerably from perfect competition. There is additional evidence as well.

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2. Feldstein and Horioka (1980) was the first in what is now an extensive literature to stress this phenomenon. See Gordon (1988) for additional theoretical and empirical criticisms of the open economy model.

The Capital Assets Pricing Model (Sharpe, 1964; Lintner, 1965) predicts an extremely high elasticity of substitution among international securities of similar risk profiles (e.g., Elton and Gruber, 1984: Ch. 10) in the absence of market impediments. Yet Lessard (1986:28) has estimated that were capital markets perfect in the CAPM sense, the equity of most in most countries would be overwhelmingly foreign owned: foreign investors would hold 95% of Swiss, 90% of British, 80% of Japanese, and 50% of United States assets. Such predictions are, of course, at least an order of magnitude too large.

These considerations do not, however, warrant a return to the older closed economy model. Tables 1a and 1b chart the net asset position of selected countries over selected periods in relation to their capital stock and GNP. It is clear from these data that national economies do **not** balance their current accounts, but rather have a tendency to hold a net debtor or creditor position over extended periods of time. The size of the asset position of various countries appear too large to support the traditional closed economy model, yet too small (especially in the post World War II period) to support the open economy alternative.

| Tables 1a and 1b about here |

This paper presents an **asset balance** model of international capital market equilibrium which is compatible both with the 'stylized facts' of increased capital mobility on the one hand, and the (approximate) equality of domestic savings and investment on the other. This model holds that each country has a **target net external asset position** (debtor or creditor) in relation to its capital stock, short run deviations from which induce portfolio adjustments

sufficient to restore equilibrium over the medium run.[3])These adjustments, which normally occur through a combination of spontaneous market behavior and economic policy, entail a high correlation in the secular movement of savings and investment.

A central prediction of the asset balance model is that a country's target asset position is stable over considerable periods of time (years or decades), and is unresponsive to short term changes in prices, interest and exchange rates, or cyclical macroeconomic conditions. Creditor and debtor countries thus occupy structural positions in the international economy for extended periods, changes in their target asset positions being precipitated by such major international dislocations as the two World Wars, the Great Depression, the demise of Bretton Woods, and the two oil crises of the 1970's.

Our model is consistent with those critics of the open economy model who stress that, while gross capital flows may have increased significantly in recent decades, capital mobility, as reflected in the size of countries' net asset positions appears, if anything, to have declined from 1880 to 1980. On the other hand, heightened gross mobility coupled with reduced net mobility engenders an increased exposure of national economies to the vicissitudes of capital movements, a point all but ignored in 'insular' Keynesian economy and supply-side models.[4]

The policy implications of the asset balance model reduce neither to those of the open nor the insular models. First, our approach suggests that capital

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3. We do not use the term 'optimal,' or even 'chosen' net foreign asset position. For the target may not be optimal with respect to society as a whole nor, in the case of credit-rationed countries, voluntarily chosen.

4. We shall refer to these models as 'insular' rather than 'closed' since, rather than ignoring international trade and finance altogether, they treat the foreign sector as loosely impacting upon domestic prices and quantities.

mobility is potentially less constraining than implied by the open economy model. Since credit rationing prevents the international equalization of profit rates, economic policies which lower the domestic return to investment, for example, may be effective to a greater degree than suggested by the open economy model. Second, since short term capital is highly mobile in the asset balance model, the need to maintain a target asset position may circumscribe policy to a greater extent than implied by the insular model. For example, the interest rate chosen by the central bank, which is unconstrained by international forces in the insular model, must equilibrate short-term financial markets in the asset balance approach. Third, the asset balance model suggests that the domestic financial system of a debtor country, being obliged to meet certain long-run structural conditions of credit-worthiness in order to satisfy its international creditors, may be substantively constrained in its domestic stabilization and growth policies. Conversely, the requirement that creditor countries maintain the power to ensure the collection of their debts may constrain domestic policy (e.g., the requirement that certain trade or military relations be maintained, or that debtors' ability to pay no be harmed by domestic policy).

Section 2 discusses the central deviation of international capital markets from the axioms of Walrasian general equilibrium, and in particular of the international version of the Capital Assets Pricing Model: the absence of third-party enforcement financial contracts. Section 3 presents a simple asset balance model of international capital market equilibrium, implying the existence of a target net external asset position. We test this model directly in Section 4. The asset balance model implies that the true coefficient of savings in a properly specified regression of savings against investment

depends upon the observed country's target asset position, but will generally be near unity. The model also predicts that an ols regression for single countries is misspecified, but that cross-sectional and pooled time-series cross-sectional regressions are considerably less subject to specification bias. We close in Section 5 with a discussion of the general policy implications of the asset balance approach.

2. International Credit Markets and the Problem of Enforcement

In this section we will argue that, while **transactions costs** in international financial markets may have decreased, **enforcement costs** probably have not; both the level and the mix of international asset exchanges remain conditioned by the absence of third-party enforcement costlessly available to partners to exchange.[5] The Walrasian model of market clearing is therefore inoperative, the 'law of once price' is routinely violated, and capital rationing is the rule, whatever the volume of international financial transactions and its sensitivity to market conditions.[6]

Under conditions of endogenous enforcement, we suggest, a debtor's asset position is constrained by the fact that as debt rises, the ability to repay becomes fragile and the incentive to default increases. Credit is rationed

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5. Indeed, enforcement costs may well have increased: the relative military and political power which creditors could bring to bear on debtors in the 19th century may have been greater than today. The replacement of colonialism with more market-integrated forms of 'neo-colonial' relations, may simply not be as effective in enforcement. See Lipson (1985).

6. On the general implications of endogenous enforcement for general equilibrium theory, see Bowles and Gintis (1988). On the failure of market clearing in labor, capital and other markets involving 'moral hazard,' see Stiglitz (1987). For models of domestic credit rationing, see Stiglitz and Weiss (1981) and Gintis (1988). On international credit rationing, see Eaton and Gersovitz (1981), Eaton, Gersovitz and Stiglitz (1986), and Kharas (1984).

because a prospective lender, faced with an overextended debtor, recognizes that no interest rate is sufficient to compensate for the increased risk of default, since an increase in the interest rate merely renders default more probable. Prudent debtors, recognizing the possibility of being rationed out of the market in unfavorable states of the world, are reluctant to borrow beyond a certain limit, however auspicious the domestic investment prospects. A country's target net debt position is a resultant of this interaction between reluctant borrowers and reluctant lenders.

Endogenous enforcement also imposes fairly strict limits on the ability of a country to export capital. Indeed, our model suggests that capital exporters must possess the wealth, international political influence, and military power to impose credible sanctions against possible defaulters. Such creditors are likely to be few in number, and their target asset positions is determined by the limits of their enforcement resources.

Let us now turn to a more formal analysis of the problem. Consider an exchange between two economic actors, A and B. Models of market equilibrium typically assume any agreement between A and B can be costlessly and exogenously enforced, usually by the judicial system of the transacting agents. Yet in many important exchanges, contract fulfillment depends on the strategic behavior of the transacting parties themselves. Exogenous enforcement will be inadequate when essential terms of the exchange can be measured only at considerable cost, when the relevant evidence is not admissible in a court of law, when there is no possible means of redress, when uncertainty concerning future states of the world relevant to the exchange preclude a fully specified contract or, most pertinent to the theory of international finance, when there is no third-party enforcer, as when A and/or B are sovereign states.

We refer to such a situation as one of 'contested exchange' (Bowles and Gintis, 1988), since in such cases the **ex post** terms of exchange are determined by the monitoring, sanctioning and incentive mechanisms instituted by agents to induce acceptable behavior in their contractual relations.[7]

Financial markets involve contested exchange, since lender or stockholder A transfers funds to an enterprise, receiving **ex ante** neither a determinate return, nor even a specific probability distribution of returns, but rather a contractually unenforceable **promise** of future returns. Thus a stockholder receives a specified share of a random variable (profits) whose expected return and risk are both contractually unspecifiable and not directly observable. Similarly, a bank receives a fixed return on its loans, but cannot fix the probability of repayment: the conditions of borrower insolvency remain outside contractual specification and enforcement.

In this situation, A must employ an enforcement strategy to induce B to hold the probability of default within tolerable limits. A can be expected to choose least-cost strategies for achieving any given level of loan security, and choose a level of enforcement expenditure which, on the margin, balances the costs of default-reduction against its benefits in the form of the present value of the loan. The strategies available to A include: gain sharing, retaliation, contingent renewal, reliance on reputation, joint control, and collaterizing. We shall begin by discussing these strategies in the context of two private agents to exchange, A and B, subject to the same political jurisdiction. We will then extend the analysis to the

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7. The problem of enforcement is treated as problematic in several modern approaches to the theory of exchange, including property rights (Alchian and Demsetz, 1972), transactions cost (Williamson, 1985), and principal-agent (Laffont and Maskin, 1982) theories.

international case.

Profit sharing involves A offering B a portion of the benefits deriving from B's activity. For instance, A may be a firm's stockholders, who offer manager B stock options to induce B to maximize profits. Profit sharing is particularly effective when A's gain is large compared to the payment to B.[8]

Reputation effects operate by several agents A pooling information concerning the behavior of B, thereby inducing B to perform adequately in order to retain transacting partners. (Okun, 1981; Rogerson, 1983). Reputation effects are of limited effectiveness in financial markets, since borrower performance tends to have an 'all or nothing' character: bankruptcy involves the dissolution of the enterprise or a regime change, while changing economic conditions may quickly render obsolete information concerning the borrower's historical performance.

Retaliation involves A imposing extra-contractual costs on B, such as physical violence, harassment, and boycott, in the event of non-performance. The effectiveness of retaliation as a means of contract enforcement is limited by two conditions. First, where A and B are subject to the same political jurisdiction, retaliator A may be vulnerable to civil redress and criminal penalties. Second, after B defaults, A may have no **ex post** incentive to impose the threatened penalties, since the loan is likely to be unrecoverable. Thus the threat of retaliation will not be a credible deterrent, unless imposing the penalties on B induces A's other debtors not to default.

Contingent renewal is an endogenous enforcement mechanism in which A

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8. Profit sharing is also more effective, the closer B is to being risk-neutral. Indeed, when B is risk-neutral, an externally enforceable contract sometimes can be implemented by transferring residual claimant status to B (Shavell, 1979, Holmstrom, 1979).

elicits performance from B by promising to renew the contract in future periods if satisfied, and to terminate the contract if not. For instance, firm A may promise employee B continual employment contingent upon satisfactory performance; or lender A may offer borrower B a short-term loan, with the promise of rolling over the loan if B is found to behave prudently.

Non-renewal of contract is a threat, of course, only if the expected value of B's gain from access to A's credit A exceeds the expected value of seeking alternative funding. Thus A must offer B an **enforcement rent**, the size of which determines the effectiveness of the contingent renewal strategy. The cost of contingent renewal as a lender strategy includes both this enforcement rent and the cost of monitoring B's behavior.

Contingent renewal is a cost-effective enforcement mechanism when borrowers are collateral-poor but have access to investment opportunities with high expected rates of return. Its effectiveness in financial markets is limited by the lender's general inaccessibility to information relevant to renewal, and the borrower's hesitancy to accept short-term financing of long-term projects, given that lenders have the **ex post** option of withdrawing credit on the basis of bad information, or correct information unrelated to the borrower's investment behavior (e.g., economic conditions pertinent to the expected success of the project).

Joint control occurs when B agrees to allow A, or agents of A, to influence directly the decisions which determine B's behavior. For example, bank A may require firm B to include A's agents on B's board of directors, or may retain veto power over certain of B's decisions.

Finally, **collateralizing** takes the form of A requiring that B expose an asset to loss or confiscation in case B's performance is unsatisfactory. On

financial markets, collateralizing involves lender A requiring borrower B to commit a certain amount of equity to a project. The prospect of asset loss may induce B to avoid behavior risking bankruptcy, thus benefitting A even should the collateral turn out to be unattachable by the lender in case of default.

Endogenous enforcement in the savings-investment market is, on balance, likely to involve some combination of contingent renewal and collateralizing. Both, it should be clear, entail **credit rationing** even in market equilibrium: borrowers are quantity-constrained in that willingness to pay the equilibrium interest rate is not sufficient to attract a supply of funds. Collateralizing as an enforcement mechanism implies that collateral-poor firms are excluded from the credit market, and firms are refused credit when their debt/equity ratio becomes sufficiently large. Credit rationing in contingent renewal credit markets takes a more extreme form: one borrower may have access to credit while another potential borrower, identical in all respects, is excluded (Gintis, 1988).[9]

The analysis of contested exchange in financial markets is considerably altered in the international context, when the contracting parties are not governed by the same political authority. We will consider only the most important case: that between a private lender and a sovereign borrower. In this situation, the total absence of third-party enforcement[10] implies

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9. The excluded agent is willing in this case to offer the lender a supra-market interest rate, but the lender will not accept, since the higher interest rate induces the borrower to assume more risk, thus lowering the lender's expected return.

10. While a lender might theoretically have recourse to the sovereign borrower's courts, it is rare that a judicial system enforce the transfer of assets to foreigners against the will of the regime in power. A judgement against the sovereign borrower may be obtainable in the lender's own courts, but the lender's government cannot be counted upon to mobilize the coercive instruments needed to enforce such a judgement (Lipson, 1985;

insolvency is no longer a necessary condition of default: the borrowing government can choose not to honor its debts for any reason whatever -- or for none at all (Eaton and Gersovitz, 1981; Eaton, Gersovitz and Stiglitz, 1986).

As a result, collateralizing, a most potent endogenous enforcement strategy domestically, is ineffective in the international context, since default does not jeopardize the real resources of the delinquent government or its subjects. The creditor's home-country and international courts may be able to seize a debtor's exposed assets, such as exported goods and working capital in foreign banks. But save in exceptional cases, such creditor initiatives are unlikely to have a serious deterrent effect, since a government's exposed assets are rarely extensive, and attaching the exposed property of the debtor country's nationals, besides being highly irregular, invites retaliation by the debtor.

Profit sharing and joint control, like collaterizing, depend upon a degree of third-party enforcement. This takes the form of contracts with enforceable provisions concerning the division of the proceeds from an investment, and the rights of lenders to participate in decision-making. Even this degree of third-party enforcement is absent in the international context, since borrowers have the power to change the rules at will. Hence such mechanisms are ineffective in relations between agents within distinct political jurisdictions.

Reputation is also of limited value in an international context, since reputation concerns the systematic behavior of particular agents, while governmental regimes change frequently, and the game-theoretic conditions which

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Frieden, forthcoming).

govern their behavior lack more than short-term stability.[11] Thus state decision makers cannot expect their current actions to have more than short-term effect upon the future availability of credit to their economic system, except insofar as their decisions affect the "underlying variables" utilized by the international financial community to assess the integrity of their loans.[12]

Contingent renewal may remain an effective in the international context. It is certainly conceivable that a lender offer a loan package sufficiently more attractive than the expected value of the borrower's alternatives, that the prospect of losing this preferred line of credit deter default. However, given the oligopolistic character of international lending and the coordination of international banking by the International Monetary Fund and related organizations, the international lender has less reason to take the borrower's alternatives as given. Indeed, collusion among lenders can ensure that default by a sovereign debtor effectively freeze the debtor from further loans for a considerable period of time. This strategy, of course, is retaliatory, in that it is aimed not at securing repayment, but rather deterring defaults by other borrowers in the future.

Retaliation, then, is likely to be the endogenous enforcement mechanism of choice in the international arena. Nor is the threat of retaliation limited to denial of future credit. Creditors may be capable of disrupting the debtor's

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11. Lindert and Morton present convincing evidence that investors pay little attention to the past repayment record of the borrowing governments. While it is possible to identify some problem areas (Latin America, Eastern Europe, Africa) and some generally prompt repayers (Western Europe, the Arab nations, Asia east of the Persian Gulf) **ex ante** differences in interest rates offered to borrowing countries were not good predictors of **ex post** returns -- apparently due to the difficulty in obtaining accurate predictions.

12. See our discussion of "repayment structures" below.

trade relations by withdrawing the debtor's access to short-term commercial banking services. In addition, creditors may be sufficiently influential to induce their governments to impose embargoes and tariffs upon, or to withdraw Most Favored Nation status from, the offending debtor. Military retaliation is also conceivable, if not in the "gunboat diplomacy" characteristic of classical imperialism (Lipson, 1985), then in such more limited forms as threatening the withdrawal of military support for the debtor country or its governing regime, and cutting off access to military equipment and spare parts.

The costs of applying sanctions remain high --indeed higher than in the domestic case, since the debtor now has an array of military responses at its disposal. But the threat of retaliation against a sovereign debtor now becomes credible, since **the debtor is not necessarily insolvent** and hence may be quite able, however unwilling, to pay.[13]

Since the major forms of retaliation involve military sanctions, trade embargos, and interference with the sovereign defaulter's ability to obtain future loans, it follows that lenders are likely to be militarily powerful, as well as holding a prominent position in international trade and finance. Borrowers are, by contrast, likely to be militarily weak, and incapable of marshalling sufficient international support to protect themselves against their irate creditors.

The military solution, while in the past apparently considerably effective, is currently out of fashion. The United States, for example exercised direct politico-military control at one time or another in the pre-

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13. Lindert and Morton (1987:13) relate the story of Khedive Ismail, monarch of Egypt, who in 1879 partially defaulted on his outstanding bonds. The British and French governments prevailed upon the Ottoman Sultan to depose Ismail, and British and French officials assumed control of Egyptian finances. Egypt fully repaid at a high interest rate.

World War I era, over Puerto Rico, Cuba, the Dominican Republic, Haiti, Nicaragua, Honduras, and Panama, and American troups intervened twice in Mexico (Frieden, forthcoming). Rising costs of intervention, however, have rendered this strategy virtually unused in recent decades.[14]

Non-military retaliation is difficult to render effective when there are more than a few creditors involved. Denial of future credit requires careful coordination among lenders. It is certainly in the self-interest of any single bank or government to strike a deal with a potential defaulter, accepting immediate partial repayment while other creditors remain waiting in the aisles for a chance to negotiate. In this situation a skillful debtor, by playing creditors off against one another, can render the threat of retaliation virtually powerless.[15]

Contemporary international financial institutions do, nevertheless, allow considerable latitude for collusion among lenders, since a handful of international banks control the bulk of credit activity, and such international intermediaries as the IMF coordinate their activities and attend to their collective needs.

One indication of the power of threat of retaliation is how infrequently such threats have been actually carried out. In a careful historical and

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14. This change in policy on the part of the United States and Great Britain is carefully charted and analyzed in Lipson (1985). It is unclear the extent to which this shift is due to economic changes (e.g., the shift in foreign investment in LDC's away from primary production for export and towards industrial production for the local market) as opposed to military changes (especially the costs of intervention and occupation). The superpowers' relative lack of success in conventional warfare against LDC's in recent years leads us to favor the military explanation.

15. In domestic financial markets this sort of behavior is generally illegal. In the United States, for instance, an insolvent debtor must declare bankruptcy and allow the courts to adjudicate among creditors.

statistical study, Lindert and Morton (1987) indicate that, while international lenders over the past century have earned sizeable risk premiums, defaulting borrowers have seldom been punished, either with direct sanctions or with access to future credit. Defaulters are especially likely to escape retaliation during global crises. The 1910s brought wholesale defaults in the Mexican and Russian revolutions and the fall of the Ottoman Empire. The greatest wave, however, came in the early 1930's (Eichengreen and Portes 1986) in which all of Latin America, most of Eastern Europe, Turkey, and China defaulted. For additional historical perspectives, see Bittermann (1973), Kindleberger (1978), Cizauskas (1978), Fishlow (1985) and Kaletsky (1985).

3. The Asset Balance Model

The asset balance model, while incompatible with a Walrasian conception of markets, does emerge in a straightforward manner from a simple microeconomic model of financial market equilibrium. This model exploits the notion that where contingent renewal is employed as an enforcement device, markets do not clear in equilibrium, adjustment to equilibrium involves quantity as well as price adjustment, and the structure of decision making on the 'short side' of the market substantively affect the equilibrium configuration even under perfectly competitive conditions (Bowles and Gintis, 1988).

The asset balance model predicts that national economies will be subject to credit rationing, the net asset position of a country being not the effect of the interest rate and time preferences, but rather the 'creditworthiness' of borrowers (i.e., their ability to pay and vulnerability to sanctions in case of default) and the 'carrying capacity' of lenders (i.e., their ability to protect their net international creditor position through the application of sanctions). Our target asset position is the resultant of these complex

considerations, and the adjustment to equilibrium, represented by a simple autoregressive process, involves reluctant lending, reluctant borrowing, policy reaction functions, the fragility of financial confidence, and various other exotica which inevitably enter into economic equilibration when prices fail to adjust to ensure market clearing.

The implications of our analysis are best presented by developing a general model of national income determination, of which the closed, open, and asset balance models are special cases. We begin with some national income accounting identities:

$$y = i + c + x + rd \tag{1}$$

$$e = x + rd \tag{2}$$

$$s = y - c \tag{3}$$

$$y = ak + rd, \tag{4}$$

$$\dot{d} = e \tag{5}$$

$$\dot{k} = i \tag{6}$$

$$s/y = b + \epsilon \tag{7}$$

$$i/k = \alpha + \mu \tag{8}$$

$$d(0) = d_0 \qquad k(0) = k_0, \tag{9}$$

where

y	= income	i	= investment
e	= current account	c	= consumption
x	= trade balance	d	= net creditor position
r	= interest rate	s	= saving
k	= capital stock	a	= income/capital ratio
b	= propensity to save	ϵ	= random error in s/y
α	= rate of growth	μ	= random error in i/y
a	= output/capital ratio	d_0	= initial debt ratio
k_o	= initial capital stock		

Equations (1) - (9) are standard and require little comment (note that we now interpret d as a net credit as opposed to debit position). The open economy model can be interpreted as (1)-(9) with the added assumption:

ϵ and μ are uncorrelated. $(10)_t$

For in this case $e/y = sy/y - i/y = (b - \alpha) + \epsilon - \mu$, so the current account is perfectly negatively correlated with investment, while saving is uncorrelated with investment. The closed economy model consists of (1) - (9) with the assumption:

$$i/y = s/y + \nu \qquad (10)_c$$

where ν is a random error uncorrelated with μ and ϵ.

We propose to replace $(10)_v$ and (10)c with the following two equations:

$$l = d/y \qquad (10)$$

$$l = -\beta(l - l^*) + \nu \qquad (11)$$

where ν is a random error term. In other words, we assume that a national economy has a target debt income position l^*, which may be either positive or negative, deviations from which engender corrective forces of one form or another.[16]

It is easy to verify that if the long-term equilibrium of (1) - (11) is to satisfy

$$d/y = l^* \qquad i/y = \alpha \qquad s/y = b, \qquad (12)$$

then the long-run debt/capital ration l^*_k must satisfy

$$l^*_k = al^*/(1-rl^*), \qquad (13)$$

and we then have[17]

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16. Equation (16) is a typical stock adjustment equation in a model of credit market equilibrium based upon rationing and endogenous enforcement. Equation (16) also serves as a formalization of the "policy reaction" interpretation of the Feldstein-Horioka results noted by Fieleke (1982), Caprio and Howard (1984), and others.

17. It may be noticed that equations (1) - (10) give rise to a long-run equilibrium debt/capital ratio given by

$$l^o = (ab - \alpha)/(\alpha - rb),$$

$$b = \alpha(1 + 1^*_k). \tag{14}$$

The error terms ϵ, μ, and ν can then be seen to satisfy

$$\nu = (1 - rl)\epsilon + \beta(1 - 1^*) - (1 + 1^*_k)\mu. \tag{15}$$

It is clear from (15) that an ols regression of savings on investment will generally produce a biased estimate of the equilibrium effect of a shift in saving on the level of investment. When (12) holds, we can derive the equation

$$\frac{i}{y} = \frac{1}{1 + 1^*_k}\,\frac{s}{y} \tag{16}$$

(note that this reduces to the closed economy model when $1^*_k = 0$, as it should). However using (15) and assuming rl (the share of interest in national income) is small, and $(1\text{-}1^*)$ is uncorrelated with the other error terms, we find

$$\gamma_2 = \frac{1}{1 + 1^*_k}\,\frac{1 + \dfrac{\sigma_{\mu\nu}}{\sigma^2_\mu}}{1 + 2\dfrac{\sigma_{\mu\nu}}{\sigma^2_\mu} + \dfrac{\sigma^2_\nu}{\sigma^2_\mu}}. \tag{17}$$

Several special cases of (17) are of special interest. First, if $\nu = 0$, so the asset adjustment equation holds perfectly, then the closed economy model appears to be supported: the ols estimate of γ_2 will be unbiased, but will not equal unity unless the country's target net asset position is zero. Second, if σ_μ is small, then γ_2 will be biased towards 0, tending to support the open economy model. Third, if $\epsilon = 0$, then ν and μ are perfectly negatively correlated and $\gamma_2 = 0$, again supporting the open economy model. This result

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which need not, and in general will not, coincide with the target asset ratio 1^*. We have shown elsewhere (Epstein and Gintis, 1988) that the period of adjustment to 1^o is very large compared to the period of adjustment to 1^*, and in general the influence of 1^o on the dynamics of the model is insignificant. We shall ignore this effect here.

should not be surprising: when the saving rate is considerably more stable than investment (a normal case), the open economy model will appear valid whatever the long-run behavior of the economy.

We will validate the asset balance model by showing that econometric estimation of equation (11) yields significant and meaningful values for the target asset position l^* and the adjustment coefficient β. This justifies treating l^* as a critical indicator of a country's position in the international financial system, and considering the world pattern of l^*'s as a basic indicator of the structure of economic power and the nature of international financial intermediation.

The ultimate test of the asset balance model, however, involves developing a persuasive **political economy of the credit positioning of national economies**, revealing the economic and political forces which determine the sign and magnitude of the target asset position l^* of national economies. The political economy of credit positioning must also inquire into the factors causing the **repositioning** of particular national economies within the international financial system.

The system of international financial intermediation, moreover, exhibits substantial periods of stability punctuated by brief periods of restructuring. If credit positioning has the efficacy suggested in this paper, such restructuring would be expected to engender a rapid and relatively synchronized repositioning of l^* in many national economies. The political economy of credit positioning should be capable of identifying and interpreting these periods of punctuated restructuring both on the level of international financial politics, and in the behavior of the asset balance equation (11).

Unfortunately, we merely brush the surface of these more complex issues in

the present paper.

4. Testing the Asset Balance Model

The heart of the asset balance model of international financial market equilibrium is equation (11), which implies that (a) countries have a target net asset position, deviations from which engender **non-price restorative forces**; and (b) this target asset position is relatively impervious to short and medium run fluctuations in prices, interest rates, macroeconomic conditions, savings propensities, and investment behavior.

One type of evidence in favor of this model is the long series of studies which have attempted to account for the net asset position of national economies in terms of the equalization of supply and demand through the adjustment of the interest rate. The existence of such a process is clearly predicted by both capital assets pricing and portfolio balance models of financial equilibrium. Yet evidence in favor of its operation has not been forthcoming.[18]

Thus it is reasonable to subject our model to the direct test, as expressed in equation (11), that economies adjust to maintain a target net foreign asset position l^*. If the asset balance model is correct, then estimates of β should be between 0 and 1, and estimates of l^* should reasonably reflect a country's qualitative position in the international monetary order.

From (10), we have

$$\dot{l} = \frac{\dot{d}_k}{k} - \frac{d_k}{k}\frac{\dot{k}}{k} = \frac{e}{k} - \frac{\dot{k}}{k}\frac{d}{k},$$

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18. See Frankel (1982a, 1982b); Dooley and Isard (1979); Boothe, Clinton Cote, and Longworth (1985). The last contains an excellent review of this now extensive literature.

where e is the current account. Since d/k is generally small, we shall use the approximation $l = e/k$. We thus rewrite (11) as

$$(e/y)_t = \beta(l^* - lvt\text{-}lv) + \epsilon_t \tag{18}$$

or

$$(e/y)_t = \beta l^* - \beta l_{t-1} + \epsilon_t, \tag{19}$$

where CA = current account surplus[19] and Y = gross national product.[20] From estimate of the constant term $\beta_0 = \beta l^*$ and the regression coefficient $\beta_1 = \beta$, we may derive the estimate β_0/β_1 of l^*.

An important characteristic of (11) and (19) is that l^* is not likely to be constant over time. Significant changes in political and economic factors at the domestic and/or international level can produce changes in a country's target net asset position. These changes can also produce changes in the speed of adjustment to l^*. These structural changes can be represented by intercept dummy variables which reflect changes in l^* (D_i) and slope dummy variables ($D_i l_{t-1}$) which reflect changes in the speed of adjustment to l^*. Thus we have

$$(e/y)_t = \beta l^* + D_1 - \beta l_{t-1} - D_1 l_{t-1} + \epsilon_t. \tag{20}$$

We have searched for these structural breaks by testing for the significance of these dummy variables at several places. We report below those break points which produce the best fit. Also, the response to deviations from the target l^* may occur with a lag due to recognition effects and other

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19. Valuations effects, caused by differential changes in asset prices and exchange rates, also produce changes in a country's net asset position. However, a country has less control over asset price changes than over its current account balance as a way of reaching l^*. Exchange rate changes are unlikely to be an effective way of achieving target net asset positions, especially for large creditors or debtors, because of retaliation effects from other countries. For now we will think of a country as primarily adjusting its current account to reach l^*.

20. We have estimated (18) with capital stock in the denominator, with little change in the conclusions.

inertial forces. We experimented with different lag lengths and report those with the best fit.

In addition, there are several possible econometric problems in estimating equation (20). One is possible simultaneity bias resulting from the fact that 1 is an endogenous variable, depending as it does on the current account balance. This is mitigated, however, by using lagged values of 1 which do not depend on the contemporaneous current account balance. A second is serial correlation, for which we have corrected when appropriate.

Table 2 presents estimates of equation (20) for several countries over varying time periods for which data are easily available.[21] Here 1^* and 1 are measured as net asset position relative to GNP. (Table 4 presents estimates for 1^* and 1 defined relative to capital stocks.) Where correction for serial correlation was necessary, the value of the serial correlation coefficient ( ) is presented. The numbers in parentheses are t-statistics.

| Tables 2-4 about here |

For all countries in the sample, the adjustment coefficient on 1_{t-i} has the appropriate negative value, giving a statistically significant value for β between 0 and 1, as the theory suggests. The lag on 1 is two periods for all countries except for the United States, which has a lag of one period. The estimates for about half the countries required correction for serial correlation.

From Table 2, we can calculate the estimated values of 1^* and β. These are presented in Table 3. Most of the 1^* estimates seem reasonable. For most

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21. The time periods for each country are given in the notes to Table 2 and can be more easily gleaned from Table 3.

countries (France and Japan excepted) l^* changed over the estimation period.[22] But in most cases the value of β does not change, as measured by the t-statistics on the interactive dummy coefficients (not shown).[23] The adjustment coefficients range from 10% to 50%, but most are concentrated in the middle 'teens. For most countries, then, the rate of adjustment to the net asset target takes more than five years.

These estimates reveal a wide range of net asset targets, from very large negative targets for Canada in the late fifties and early sixties to moderately high positive targets for the United States in the fifties and sixties. Yet the range is much smaller than those implied by the data for the 19th century (Table 1a). The estimates also reveal that most countries' net asset targets shifted in the 1970's, with the fall of the Golden Age' as many countries in our sample repositioned themselves in the face of domestic and international adversity.[24] There seems to be a new repositioning occurring in the 1980's, but it is too early to obtain reliable estimates of the new l^* for some countries, notably the United States and Japan.

In general, the estimates are consistent with the idea that most countries choose, or have thrust upon them, net foreign asset targets to which they adjust, but that these targets change over time with significant domestic and

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22. The exception was Canada, which in some regression had a significant shift dummy around the time of the Vietnam War. The size of this shift seemed too large and may be due to data problems. The Canadian case requires further study.

23. The t-statistics, testing the significance of the l^*'s, were calculated using a linear approximation for the standard error of $(-\beta_0/\beta)$. See Marglin (1984), p. 445. Wald tests were performed and decisively rejected in all cases the hypotheses that the coefficients are jointly zero.

24. See especially Glyn, Lipietz, Hughes and Singh, and Epstein and Schor, in Marglin (forthcoming).

international events. For example, the Vietnam War and the decline of United States dominance in the 1970's, led the United States to adopt smaller net asset positions, while the rise to power of Thatcher in Great Britain in the late 1970's led the United Kingdom to pursue greater net asset positions.

Tables 4 and 5 present estimates of l^* and adjustment rates β where l and l^* are defined relative to the country's stock of fixed capital. The sample here excludes Japan and Sweden, which lack capital stock data. In general, the results are consistent with those of Tables 2 and 3. Table 5 presents the estimates of l^* and β for different time periods, and the results are similar to those in Table 3, the adjustment coefficients being mostly in the high teens and low twenties, and target asset positions changing for most countries over time.

| Table 5 about here |

5. Policy Implications

Our model of international capital market equilibration conforms neither to neoclassical price adjustment nor Keynesian quantity adjustment. An analysis of the implications of the asset balance model for economic policy is thus complex, and cannot be addressed with any degree of precision without a more explicit model of the domestic economy than we can feasibly provide in this paper. Hence in this section we will explore policy implications only to the extent that they are amenable to general treatment.

Macroeconomic models fall naturally into two categories: those that treat the domestic economy as only loosely connected to the rest of the world through international trade and finance (so-called insular models), and those that view domestic economy as inextricably linked to its position in an international

system of market relations (so-called **global** models). The asset balance model falls clearly in the global camp, along with the textbook open economy model, which views prices of all traded goods and financial instruments as set on international markets. By contrast, classical Keynesian and supply-side models, both permitting a strong degree of independence of domestic profit and interest rates from international levels, and both predicting a strong association between domestic investment and savings, fall clearly in the insular camp.

In this section we compare policy implications of the asset balance model with those of the open economy model and the two insular models. In addition, we will analyze the asset balance model under two distinct assumptions: First, that a country's target asset position is exogenously determined, in which case the economy's external constraint is the requirement that its current account adjust to restore asset balance for a given l^*; and second, that the long-term asset position l^* is endogenously determined, and its maintenance constrains a country's policy choices.

Our results may be summarized as follows. In terms of short-run stabilization (see Table 6), the asset balance model is in significant agreement with the open economy model, except that under fixed exchanges the open economy model holds that monetary policy can affect only the level of reserves, so is ineffective for internal balance, while the asset balance allows an effective monetary policy. Most important, however, is that when the impact of capital flight[25] on an economy's long-run asset position is taken

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25. By 'capital flight,' we mean the outflow of finance in response to expected changes in future real rates of return. Capital flight occurs in the asset balance model when financial investors expect a change in the creditworthiness of assets denominated in a particular currency or held by a particular national economy; i.e., when some change in l^* is expected.

into account (the variable 1^* case), the asset balance model predicts a more constrained range of policy alternatives than the other models.

| Table 6 about here |

In terms of long-run policy (see Table 7), by contrast, the asset balance model conforms to the predictions of the insular models in the fixed 1^* case. However the policy implications are much less conventional when it is recognized that sustaining a long-term asset position imposes serious constraints. Creditor countries must be economically and militarily powerful; debtor countries must be vulnerable. These imperatives of long-term lending and borrowing, ignored in other models of international capital flows, are the central policy implications of the asset balance model. In particular, the asset balance model implies that international economic credit relations impose more serious constraints than suggested by the insular model.

| Table 7 about here |

In the final section, we describe the relation between the asset balance model and the global liberal model (Bowles and Gintis, 1986; Wachtel, 1987). Here we argue that the asset balance model operates much like a global liberal model with non-Walrasian foundations. As in the global liberal model, national autonomy, and in particular, the extension of democratic rights in the state and economy, might be severely compromised in countries that are fully integrated into international credit markets.

Insular and Global Models

Modern open economy policy analysis has been concerned with one overriding question: Can macroeconomic tools achieve domestic goals (internal balance)

when a country must satisfy external constraints (external balance)? The models used to answer this question, and indeed the question itself, has evolved over time. Early post-war discussion centered on short-run stabilization policy and balance of payments equilibrium. More recently, concern has shifted to long-run growth and international borrowing and lending implying current account equilibrium as the external constraint (Kenen, 1984).

Policy issues in this context have been framed by two models. The first, the insular model, posits an extensive role for macroeconomic policy in achieving domestic goals subject to external constraints (Mckinnon, 1981), since according to this view, economies are international price makers. Exchange rate policy can alter a country's terms of trade; monetary policy can alter a country's relative interest rate; and the domestic profit rate can be altered through fiscal, trade union, or tax policy.[26]

Open economy models, while often in agreement with insular models on the efficacy of short-run stabilization policy, assume that national economies are price-takers in internationally integrated markets. Traded goods prices, interest rates, and profit rates, equalized internationally by goods, financial, and capital arbitrage, are unaffected by macroeconomic policy.[27] Hence the latitude for short-run policy is more limited than in the insular case.

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26. There are different versions of the insular model: models oriented primarily toward short run analysis (Meade, 1951; Mundell, 1968; for a survey see Kenen, 1986); long run supply side models (Feldstein and Horioka, 1980) which assume full employment; and long-run non-neoclassical models along neo-Keynesian and neo-Marxian lines (Marglin, 1984).

27. For a survey see Dornbusch (1980) and Frenkel and Razin (1987). Non-neoclassical models, such as Bowles and Gintis' global liberal model share some of the characteristics of the open economy model, but will be discussed under a separate heading below.

The policy implications of these models are starkly different, both in the short and in the long term. For short-term stabilization policy, the insular model implies that internal goals, such as full employment, need not be sacrificed to external constraints (Meade, 1951; Swan, 1958; Mundell, 1968).

In the long run, the implications of the two models are also significantly different. The insular models operating at full employment are constrained by domestic savings, whereas open economies are not.[28] This means that under full employment, expansionary fiscal policy will crowd out domestic investment as in the supply side model of Feldstein and Horioka; In neo-Keynesian insular models, domestic economic growth is likewise domestically constrained, either by saving or by investment (Marglin, 1984).

By contrast, in the open economy model current period government deficits do not crowd out investment at full employment. Over time, the price taking country engages in 'inter-temporal trade,' increasing current consumption and investment, at the expense of future consumption (Frankel and Razin, 1988).

While the open economy model implies that a country can engage in intertemporal trade at the going profit rate, it has no power to cause the profit rate to deviate from its international level. A government wishing to redistribute income from capital to labor, or tax capital for distributional purposes, will find its economy shrink. The insular economy, on the other hand, is not constrained by the international profit rate. Domestic, not international, factors thus determine the extent to which governments can achieve their goals by altering the distribution of income (Marglin, 1984).

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28. Of course these savings can include foreign exchange reserves earned by accumulated trade surpluses, though the spirit of the insular model is that, in the medium term, trade surpluses and deficits will balance out. The point is, however, that countries cannot borrow large amounts in advance of such savings.

In short, the insular economy can and must manage its own destiny; the open economy has greater access to world resources but its ability to manage them is limited by an externally-imposed system of interest and profit rates.

The Asset Balance Model in the Short Run

The asset balance model differs from the open economy and insular models in its stress upon the possibility that monetary and fiscal policy may be constrained by adverse short-term international financial flows. For instance, in the standard Mundell-Fleming model, full employment can be attained while international financial market equilibrium is maintained, through proper settings of monetary, fiscal and exchange rate policy.

On the other hand, if short term financial flows are sufficiently disruptive -- as in the case of destabilizing exchange rate speculation, or where policy measure weaken the expectation of creditors as to the country's ability to maintain its current long-term asset position -- then the asset balance model implies that domestic governments will be unable to achieve domestic goals in the face of their asset target constraint. In this case, the short-run policy implications of the asset balance model are much more pessimistic than that of the insular model. Countries will be forced to maintain their external balance targets without the macroeconomic tools to maintain full employment. Here domestic goals would have to be sacrificed to external balance as contemporary post-Keynesian and some Keynesian critics are suggesting (Dornbusch 1986; Minsky, 1982).[29]

Capital flight illustrates the potential gravity of this phenomenon. In

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29. These views have much in common with Nurkse's classic analysis of the inter-war monetary system (Nurkse, 1944), and Keynes' analysis in "National Self-Sufficiency," (1933) which argued that countries must reduced their international financial interactions (Crotty, 1982).

the insular model with imperfect capital mobility capital flight is a manageable problem. An increase in domestic interest rates, or a decline in the exchange rate, are sufficient to stem and even reverse capital flight. In the open economy model, capital flight is even less problematic. Since financial flows are highly elastic with respect to rates of return, the interest rate and exchange rate changes (see Krugman, 1979) required to inhibit capital flight are relatively small.

In the asset balance model, by contrast, where debtor countries are faced with credit rationing, capital flight can be a serious problem. Capital flight typically involves the loss of foreign exchange. If foreign assets held abroad and the income from them are attachable by the debtor country, then, the asset balance model suggests, capital flight is of no significance since capital flight will simply involve the exchange of one foreign asset (e.g., reserves held by the central bank) for another (e.g., real estate in Miami). However, if these assets are not attachable by the domestic government, then capital flight involves an increase in the debtor countries debt position, equal to the loss in foreign exchange as a share of the country's capital stock.

Given the country's l^*, such a loss could then entail significant difficulties. For one, the loss of foreign income would worsen the country's current account, requiring further adjustment to reach the country's l^*. More significantly, if the country must maintain its given l^*, then its loss of foreign exchange reserves would reduce it asset position (l) below its target (l^*); as a result, the country would be forced to implement an even greater reduction in current account position. Changes in domestic interest rates or profit rates, in the face of credit rationing, are unlikely to be sufficient to stem or reverse such capital flight.

The Asset Balance Model in the Long Run

If we assume the long-run asset position of a national economy is fixed, then the long-run asset balance model operates as a modified long-run insular model (Marglin, 1984) -- modified because, unlike the insular model, countries do borrow and lend over the long run, and thus, a country's growth rate can be augmented by foreign savings. However, it agrees with the insular model in that, by contrast with the open economy model, when the country's asset position is in equilibrium, additional fiscal stimulus crowds out investment, since foreign borrowing cannot be increased. Thus, given its l^*, domestic growth is ultimately savings-limited if the economy is at full employment, or investment limited, if it faces chronic underemployment.

Furthermore, like the insular model and unlike the open economy model, domestic profit rates need not equal foreign profit rates. For the movement of capital in the face of profit rate differentials is counterbalanced by the tendency of financial markets to maintain an economy's actual debt position in line with its target l^*; i.e., there are significant barriers to the internationl flow of capital. By the same token, since countries are not price takers at the going rate of profit, capital funds will not massively exit a country in response to profit rate differentials. Hence there is considerable latitude to use the profit rate as an instrument of long-run policy.

The International Credit Regime

Until now we have assumed that a country's long-term asset position l^* is exogenously given. In this case, the model implies possibly significant policy constraints in the short run, but in the long run, it operates much like the insular model.

However, the long-run policy implications of the asset balance model are, in fact, far reaching once one recognizes that a country's l^* is endogenous. This means that a country must undertake particular behaviors, and more importantly, implement particular policy structures, to sustain its asset target. It is these behaviors and structures which entail significant constraints of international credit relations. And because they affect prerogatives of power and the distribution of wealth, these structures represent intense objects of domestic and international political struggle.

More concretely, creditor countries must possess the political and military power, and international trading and financial structures to credibly threaten recalcitrant debtors. Debtors on the other hand, must possess the economic and political structures to credibly commit themselves to servicing their debt. Adjustments of interest rates, fiscal policies, or even profit rates, will not suffice.

We call the set of creditor and debtor structures which sustain a particular world configuration of l^*'s an **international credit regime**. An international credit regime includes an **enforcement structure** and a **repayment structure**.[30] The enforcement structure consists of those institutions, both domestic and international, which major creditor countries have developed to provide rewards and impose sanctions on debtors. In the Post-War period these institutions included the International Monetary Fund and the World Bank (Payer, 1974), the United States government's commitment to free trade (Block, 1977), the United States Marines and the Central Intelligence Agency (Kolko, 1988). The repayment structure consists of the institutions and

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30. Our discussion of international credit regimes has benefitted from Lipson (1985), who however is unconcerned with the political economy of domestic enforcement and repayment structures or their microfoundations.

behaviors of debtor countries which support their target asset positions.

These institutions convince lenders that the debtors will repay, and thus determine their creditworthiness. They include an outward-oriented trade policy which makes a debtor vulnerable to trade sanctions, and a debtor government's dependence on United States military aid which makes a government vulnerable to military sanctions. The repayment structure interacts with the enforcement structure to effectively impose costs and benefits. This interaction of the enforcement structure and the repayment structure sustains the global configuration of target asset positions.

The international credit regime is likely to be the object of political struggles at the international and domestic levels. Domestically-oriented business in a creditor country, for example, may oppose a government commitment to open import markets, while organized labor may oppose governmental support of outward foreign investment. Similarly, groups in debtor countries who loose from International Monetary Fund austerity programs, and national capitalists in debtor countries who are harmed by export-oriented growth, may oppose the government's commitment to maintaining a debtor's creditworthiness.

History is filled with examples of such conflicts. The series of political battles in the United States, and between the United States and Great Britain, over the establishment of the Bretton Woods System in the post-war period, provides a classic example of the confluence of political and economic forces giving rise to an international credit regime (Block, 1977). The erosion of the United States' commitment to free trade and the rise of Japanese power represent historical forces which

undermine such a regime.[31]

It is important to note that an international credit regime accounts for a configuration of target asset positions, not the actual asset positions at any particular time. A country's asset position at any particular time is determined by an array of factors, from random fluctuations in exchange rates, to bouts of optimism, pessimism or "loan pushing." But, whatever these fluctuations it is the structures embodied in the International Credit Regime which determine whether these shocks are ratified by a country's long term target, or evaporate with the next wave or fashion.

There are many important historical examples of swings in creditor positions which proved ephemeral. During the First World War, for example, the United States became a net international creditor for the first time. Banks in the New York financial markets actively floated bonds for European and Latin American borrowers, as the United States' credit position accumulated (Fishlow, 1985; Darrity and Horn, 1988) Yet the United States' enforcement structure was not sufficient to sustain its creditor position in the face of domestic opposition, foreign competition, and of course, the Great Depression (Frieden, forthcoming; Schucker; Lipson, 1985). Only the Second World War, and the reconstruction of domestic and international relations which followed, were sufficient to create an international credit regime capable of sustaining the United States' massive creditor position.

The asset balance model thus differs fundamentally in its policy implications from the insular and open economy models which, while differing in important respects, share a lack of concern for the structural implications of

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31. DeCecco (1974) and Davis and Huttenback (1986) discuss the political economy of the enforcement Regime in 19th century Great Britain.

international financial relations. There is no important place for such structural issues in open and insular models, since they assume that international financial relations are governed by Walrasian adjustment.

By contrast, the asset balance model stresses such structural implications. Where movements in market rates of return are unable to achieve international financial equilibrium, such structural factors as the nature of a country's trading patterns, the potential for exercising national military and political power, and the political alliances of national governments play an essential role in the equilibration of international financial markets.

In short, while the insular and open economy models view international financial equilibration purely in terms of adjustments in quantity and prices, the asset balance model recognizes that international financial equilibration implies the maintenance and transformation of particular financial, trading and political regimes. The asset balance model thus replaces the zero current account constraint of the insular model, and the equal profit rate constraint of the open model with the structural imperatives of sustaining a country's position in international credit markets. From this perspective, the asset balance model suggests that international credit markets allow countries to overcome temporal budget constraints, but only by following specific intertemporal 'rules of the game.' As in other areas of political economy, these rules involve serious constraints for all, while providing benefits to some and costs to others.

Global Liberalism Revisited

We end with the basic question addressed by this volume: how much autonomy do nations have in the contemporary global economy? The global liberal model (Bowles and Gintis, 1986; Wachtel, 1987) says very little:

> In this (the global liberal) form of accommodation, the democratic structure of the state is rendered vacuous...Unless the economy in question has special advantages that make it more attractive to capital, it must do what it can to match the profit-enhancing strategies enacted by competing states. When economies are so thoroughly integrated in the world economic system that the supply of investment in any given economy is highly responsive to small differences in the expected profit rate, the effective range of choices may be reduced to a single set of policies, a global equivalent to Henry Ford's 'you can have any color car you want, as long as it is black.
>
> Bowles and Gintis, 1986:191

The asset balance model poses a distinct, yet no less demanding, set of constraints on national policy. While profit rate equalization is not a binding constraint on national governments in the asset balance model, maintenance of creditworthiness for debtors, and the capacity to collect for creditors, becomes a key factor in policy analysis.

The need for the endogenous enforcement of debtor-creditor relations implies that the Walrasian capital adjustment mechanism underlying the global liberal approach is generally inoperative. National economies are not forced by the market to play particular roles in international credit markets; the configuration of their domestic political forces and their position in the international economy can determine their relationship to international credit markets along a spectrum of roles -- within, however, the rules of the international credit regime governing the global distribution of target asset positions.

Thus, to attract foreign investment or, conversely, to become large creditors, nations do mortgage their economic and political autonomy. For debtor countries, effective repayment structures may conflict with the broad extension of democratic rights within the economy and state. For large creditors, enforcement structures preclude policies to reduce military forces and political intervention.

In short, according to asset balance model, global credit relations do not force nations to conform to some internationally-determined rate of profits, but what they do impose -- political and economic vulnerability for debtors, and military and political intervention among creditors -- is doubtless no less challenging to our political will and imagination.

Table 1a
Net Foreign Assets Relative to Tangible Capital[a]
(Percent)

	1880	1914	1940	1950	1960	1973	1977
Australia			-10.3	-5.7	-5.0	-3.6	-2.9
Belgium	9.7	18.0	17.7	5.6	7.6	13.5	11.0
Canada				-13.3	-14.0	-8.9	-7.8
Denmark	8.8	-10.8	-5.2	-3.6	-2.2	-4.6	-5.3
France	15.5	22.5				-1.7	-0.9
Germany			1.7	-5.0	3.0	1.2	2.5
Great Britain	63.0	67.4	40.3		5.9	1.6	-2.5
India	-15.1	-20.2	-18.4	5.1	-3.8	-6.5	-3.1
Italy	-7.4	-2.4			0.7	2.1	0.5
Japan	-8.9	-7.0	1.1	1.8	-0.5	1.4	1.6
United States	-5.9	-2.0	7.3	4.3	3.3	1.1	1.0

a. Actual Dates: **Australia**: 1947,1956,1965,1973,1977. **Belgium**: 1895,1913, 1939,1948,1965,1973,1976. **Canada**: 1955,1965,1973,1978. **Denmark**: 1880,1913, 1938,1948,1965,1973,1978. **France**: 1880,1913,1972,1976. **Germany**: 1895,1913, 1938,1950,1960,1972,1977. **Great Britain**: 1895,1913,1937,1957,1965,1973,1977. **India**: 1895,1913,1939,1950,1960,1970,1975. **Italy**: 1895,1914,1938,1951,1963, 1973,1977. **Japan**: 1885,1913,1940,1955,1965,1970,1977. **United States**: 1880, 1910,1939,1950,1965,1973,1978. Source: 1880-1977: Goldsmith(1985).

Table 1b
Net Foreign Assets Relative to GNP[a]
(Percent)

	1880	1914	1940	1950	1960	1973	1977	1985
Australia			-27.5	-19.3	-20.0	-11.5	-11.4	
Belgium	53.2	81.4	71.6	17.8	24.3	40.6	40.8	
Canada				-37.5	-39.5	-24.0	-24.9	-35.6
Denmark	17.9	-32.9	-16.2	-12.2	-6.7	-12.3	-19.3	
France	69.5		97.1			-4.8	-2.9	-1.8
Germany			6.1	-13.8	5.0	4.0	8.1	7.8
Great Britain	141.4	153.3	93.0		8.2	5.3	-12.6	20.6
India	-27.9	-32.6	-43.4	11.4	-11.4	-19.7	-12.1	
Italy	-23.9	-7.8			2.3	6.4	1.7	-6.7
Japan	-30.1	-21.9	29.9	24.8	-0.9	2.4	3.7	8.1
United States	-14.6	-5.3	21.8	11.5	8.6	3.1	3.1	-3.1

a. Actual Dates: **Australia**: 1947,1956,1965,1973,1977. **Belgium**: 1895,1913, 1939,1948,1965,1973,1976. **Canada**: 1955,1965,1973,1978,1985. **Denmark**: 1880, 1913,1938,1948,1965,1973,1978. **France**: 1880,1913,1972,1976,1985. **Germany**: 1895,1913,1938,1950,1960,1972,1977,1985. **Great Britain**: 1895,1913,1937,1957, 1965,1973,1977,1985. **India**: 1895,1913,1939,1950,1960,1970,1975. **Italy**: 1895, 1914,1938,1951,1963,1973,1977,1985. **Japan**: 1885,1913,1940,1955,1965,1970,1977, 1985. **United States**: 1880,1912,1939,1950,1965,1973,1978,1985. Source: 1880-1977: Goldsmith(1985); 1985, IMF(1988).

Table 2
The Adjustment of Net Asset Positions as a Percentage of GNP (Dependent Variable: Current Account/GNP)

	C	D1	D2	lt-i	R2	D.W.	
Canada	-.09	.02		-.17	.54	1.7	
	(6.14)	(5.80)		(-4.70)			
Finland	-.02	-.04		-.10	.57	2.1	
	(-3.19)	(-5.21)		(-1.7)			
France	-.01			-.19	.15	1.3	
	(-2.30)			(-2.20)			
Germany	.02	-.01		-.46	.49	1.7	.4
	(3.50)	(-3.40)		(-2.90)			
Japan	.02			-.50	.29	1.8	.6
	(2.20)			(-2.00)			
Norway	-.06	-.09		-.30	.71	1.8	
	(-4.80)	(-6.90)		(-5.40)			
Sweden	.00	-.04		-.13	.38	1.7	
	(.98)	(-3.90)		(-3.00)			
United Kingdom	.01	.02		-.20	.54	1.7	.5
	(1.00)	(2.84)		(-2.80)			
United States	.03	-.01	-.02	-.24	.23	1.8	.2
	(3.10)	(-2.40)	(-3.30)	(-2.70)			

T-Statistics are in parentheses, lt-i is net asset position/GNP, and D1,D2 are dummy variables; for dates see below. All current account data from OECD National Income Accounts, Vol. I. All other data from IMF, International Financial Statistics (IFS), unless otherwise stated. Canada:1958-1986, D1=0,1958-1966, D1=1, 1967-1986; Net Foreign Assets, 1947-1974, **Historical Statistics Canada, 2nd edition** (1983). 1978, from Goldsmith (1985); 1980-1986 from IMF (1988); all other interpolated using current account balances. Finland: 1963-1984, D1=0, 1963-1973, 1977-1984; D1=1, 1974-1976. Net Foreign Assets, 1963-1979, from Central Bank of Finland; 1980-1984, derived by accumulating current account balances. France: 1963-1986; Net foreign asset position, 1972, 1976, Goldsmith (1985); 1982-1986, IMF (1988); 1960-1971, extrapolated from 1972 using current account balances. GNP data from OECD (1988). Germany:1960-1984; D1=0, 1960-1978; D1=1, 1979-1984. Net foreign asset position, Deutsche Bundesbank. Japan: 1965-1982. Net Foreign Assets, 1971-1982, from Bank of Japan, **Balance of Payments Monthly**; 1965-1970, derived from accumulating current account balances. Norway:1963-1985, D1=0, 1963-1974, 1981-1985; D1=1, 1975-1979. Net foreign Assets, 1970-1985, from Norwegian

Central Bank; 1963-1979, interpolated with current account balances from 1960 and 1965 data in Fritz Hodne, **Norwegian Economy,1920-1980**, p. 258. Sweden: 1965-1985, D1=0, 1965-1978;D1=1,1979-1985. Net Foreign Assets, 1977-1985, Swedish Central Bank, 1965-1976, derived from current account balances. United Kingdom:, 1965-1986. D1=0, 1965-1979, D1=1, 1980-1986. Net Foreign Asset position from **United Kingdom's Balance of Payments** (The Pink Book, Central Statistical Office). United States:1951-1982. D1=0,1951-1966, 1972-1982; 1972-1982; D1=1,1967-1971; D2=0,1951-1971; D2=1,1972-1982. Net Foreign Asset position from **Survey of Current Business**.

Table 3
Net Foreign Asset Targets (l^*)[a] and Adjustment Rates (β)

	l^* (%)	β (%)
Canada		
1958-66	**-53.0**	**17**
	(-16.2)	
1972-86	**-37.0**	
	[-6.0]	
Finland		
1963-73	**-23.0**	**10**
	(-3.1)	
1974-76	**-66.0**	
	[1.6]	
1977-84	**-23.0**	
France		
1963-86	**-4.4**	**19**
	(-6.8)	
Germany		
1960-78	**9.8**	**50**
	(10.0)	
1979-84	**5.6**	
	[2.9]	
Japan		
1965-82	**3.8**	**50**
	(2.8)	
Norway		
1963-74	**-21.0**	**30**
	(-9.7)	
1975-80	**-52.1**	
	[5.4]	
1981-85	**-21.0**	
Sweden		
1965-78	**2.9**	**13**
	(1.1)	
1979-85	**-24.8**	
	[5.5]	
United Kingdom		
1965-79	**-26.5**	**20**
	(-1.0)	
1980-86	**16.2**	
	[-3.0]	
United States		
1951-66	**11.3**	**24**
	(13.5)	
1967-71	**8.2**	
	[2.8]	
1972-82	**3.4**	
	[3.7]	

The t-statistics testing the null hypothesis that l^* is equal to 0 are in parentheses (). The t-statistics testing the null hypothesis that a country's l^* is different from the previous l^* are in brackets [ ].

[a]Here l^* is net foreign asset position divided by GNP. Calculated from Table 2; l^* is the constant from Table 2 plus appropriate dummy coefficients divided by the negative of the coefficient on l_{t-i}. β is the negative of the coefficient on l_{t-i}.

Table 4
The Adjustment of Net Asset Positions as a Percentage of Capital (Dependent Variable: Current Account/Capital Stock)

	C	D1	D2	lt-i	$\bar{R}2$	D.W.	
Canada	-.03	.01		-.10	.25	2.1	.3
	(-2.40)	(1.80)		(-1.90)			
Finland	-.01	-.01		-.15	.55	2.0	
	(-3.50)	(-4.90)		(-2.20)			
France	-.01			-.14	.09	1.3	
	(-2.00)			(-1.80)			
Germany	.02	-.01		-.46	.51	1.7	.4
	(3.50)	(-3.40)		(-2.40)			
Norway	-.02	-.02		-.32	.70	1.7	
	(-4.40)	(-6.20)		(-1.65)			
United Kingdom	.002	-.01		-.17	.47	1.5	.5
	(.90)	(-2.20)		(-1.80)			
United States	.01	-.003	-.01	-.24	.34	1.8	.3
	(3.00)	(-2.30)	(-2.3)	(-2.60)			

T-Statistics in parentheses. All current account data from OECD National Accounts, Vol. I unless otherwise stated. All capital stock data are net capital stock from OECD(1987) unless otherwise stated. For Net Asset data, see Table 2. Canada:1963-1985, D1=0,1963-1966, D1=1, 1967-1986; Finland: 1963-1985, D1=0, 1963-1973, 1977-1985; D1=1, 1974-1976. France: 1963-1984; Germany:1963-1984; D1=0, 1963-1978; D1=1, 1979-1984. Norway:1965-1985, D1=0, 1965-1974, 1981-1985; D1=1,1975-1980. United Kingdom:, 1965-1986. D1=0, 1965-1979; D1=1, 1980-1986. United States: 1950-1982. D1=0,1950-1966, 1972-1982; 1972-1982; D1=1,1967-1971; D2=0, 1951-1971; D2=1, 1972-1982. Net capital stock data are Net Reproducible Tangible Wealth, excluding consumer durables, Survey of Current Business, November, 1987.

Table 5
Net Foreign Asset Targets (1^*)[a] and Adjustment Rates (β)

	1^* (%)	β (%)
Canada		
1963-66	**-31.0**	**10**
	(-5.4)	
1967-85	**-22.0**	
	[-2.1]	
Finland		
1963-73	**- 6.5**	**15**
	(-4.7)	
1974-76	**-15.0**	
	[2.0]	
1977-85	**- 6.5**	
France		
1963-84	**-4.3**	**14**
Germany		
1963-78	**2.0**	**46**
	(10.1)	
1979-84	**2.0**	
	[3.4]	
Norway		
1965-74	**-5.8**	**17**
	(-9.2)	
1974-79	**-12.3**	
	[4.7]	
1980-85	**-5.5**	
United Kingdom		
1965-79	**1.5**	**17**
	(1.3)	
1980-86	**5.5**	
	(3.2)	
	[-1.9]	
United States		
1951-66	**5.0**	**24**
	(13.4)	
1967-71	**3.8**	
	[2.6]	
1972-82	**1.6**	
	[4.3]	

The t-statistics testing the null hypothesis that 1^* is equal to 0 are in parentheses(). The t-statistics testing the null hypothesis that a country's 1^* is different from the previous 1^* are in brackets [ ]. a. 1^* is net foreign asset position divided by net capital stock. Calculated from Table 2; 1^* is the constant from Table 2 plus appropriate dummy coefficients divided by the negative of the coefficient on 1_{t-i}. β is the negative of the coefficient on 1_{t-i}.

Table 6
A Comparison of Alternative Paradigms:
Short Run Stabilization Policy

	Insular		Global	
Keynesian	Supply Side	Open Economy	Asset Balance Fixed 1*	Asset Balance Variable 1*
Constrained by Threat of Capital Flight	Yes	No	No	No	Yes
Fiscal Policy is Effective for Internal Balance	Yes	No	Yes	Yes	Yes
Fiscal Policy is Effective for External Balance	Yes	No	Yes	Yes	Yes
Monetary Policy is Effective for Internal Balance					
Fixed Exchange:	No	Yes	No	Yes	Yes
Flexible Exchange:	No	Yes	Yes	Yes	Yes
Monetary Policy is Effective for External Balance					
Fixed Exchange:	No	Yes	Yes	Yes	Yes
Flexible Exchange:	No	Yes	Yes	Yes	Yes

Table 7
A Comparison of Policy Paradigms:
The Long Run

	Insular		Global	
	Keynesian	Supply Side	Open Economy	Asset Balance
Savings-Investment Linkage	Autonomous Investment	Savings Driven	None	Savings Limited
The Profit Rate as a Policy Variable	Yes	Self-Defeating	No	Yes
Effectiveness of Taxing Wealth	Yes	No	Yes	Yes
The Foundations of Global Liberalism	x	x	Perfect Markets	Endogenous Enforcement

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